

DEMOGRAPHY,  
ECONOMY AND ENVIRONMENT IN  
THE DEVELOPMENT OF HILL AREAS

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DEMOGRAPHY, ECONOMY AND ENVIRONMENT IN THE DEVELOPMENT  
OF HILL AREAS \*T.S. Papola  
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Conditions of human living in any spatial unit are determined by the interaction between the population, economy and nature. Population provides the need as well as the basic input, namely, labour, for development, but the extent to which this need is fulfilled depends on the resource base provided by nature, and the feasible structure and technologies of production activities. The structure and level of productive activities is a function of the need pattern, enterprise and industry of the population on the one hand, and resource endowment of the region, on the other. While nature, on the one hand, provides the basic resources for human survival and growth, it also imposes, for the same reason, a limit on the possibilities of growth of productive activities. Such a limit arises for two reasons : one, nature may be niggardly and the resource base limited; and two, an indiscriminate use of natural resources, especially the non-renewable ones, for meeting human needs may lead to the eventual depletion of such resources making continued survival and growth difficult, and may also result in environmental damage adversely affecting the non-economic aspects of human life. A lack of adequate understanding of these interactions and inadequate emphasis on the need to strike a balance among these variables in the strategy for development inevitably result in disequilibrium between the demographic, economic and environmental sub-systems. Underemployment, poverty and unemployment,

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\* Paper prepared for presentation to the Seminar on "Environmental Regeneration in the Himalaya - Concepts and Issues" organised by the Central Himalayan Environmental Association at Naini Tal, October 24-25, 1983.

wasteful movement of people, and ecological imbalance endangering human survival itself are some of the important manifestations of such a disequilibrium.

While the need to secure a balance among the three sub-systems is important universally, its importance is particularly crucial in areas like the Himalayan region. In this region the relationship between the economic pursuit of man for his livelihood and progress and nature is precarious. Nature is not bountiful in so far as the resources for economic growth are concerned, yet the economic activities carried out for survival and growth are heavily dependent on the extraction and exploitation of these limited natural resources. Exploitation of these resources, beyond a point, endangers the environmental balance, threatening the very survival of men, while limiting the use of resources only to that point where the environmental balance is not threatened is likely to provide only a highly inadequate level of living for the people in the given technological and organisational set-up.

The discussion on the demographic, economic and environmental aspects of development of hill areas has generally tended to proceed in isolation from each other and, consequently many a times, it has been at cross purposes and counterproductive. The purpose of this note is primarily to argue that the three are inter-related thereby underscoring the need for a more integrated



and realistic approach to the problem in the context of the hill region of Uttar Pradesh.

### The Demographic Dilemma

A rapidly increasing population acting upon the limited and environmentally crucial resources, creates the most obvious problems of low levels of living as well as ecological imbalance in the hill areas of Uttar Pradesh. A rapid increase in population is not peculiar to hill areas, but a virtual fixity of resources, no doubt, renders it particularly significant. Further, the growth rate of population is also observed to be relatively high in hill areas, despite a somewhat lower birth rate, due to a relatively much lower death rate, particularly among children (Khanka, 1983). A further decline in the birth rate may be expected due both to the secular trends and family welfare programmes, but any slackening of the population growth is unlikely because the death rates are likely to decline further with improvement in health facilities.

Agriculture being the predominant occupation of the people in the region, it is natural that one first looks at the prospects in this sector to provide livelihood to the increasing population. The situation, unfortunately, is far from optimistic. The land base is very small and relatively less fertile. In the hill region as a whole (consisting of the eight districts of Almora, Naini Tal,

Pithoragarh, Dehra Dun, Garhwal, Chamoli, Tehri Garhwal and Uttar Kashi) the net area sown as a percentage of total reporting area for land use purposes was only 5.8 as compared to 58.6 in the State in 1978-79.<sup>1</sup> In individual districts the figure ranged between 4 (Uttar Kashi) and 29 (Naini Tal). Further, much of the land used for cultivation (except in the valley areas) is of poor quality being either shallow, poor-textured, or steep-sloped and not really fit for cultivation in terms of land capability criteria (Mathur, 1979). The predominance of small land holdings scattered in tiny plots and terraces also inhibits the full development of agriculture.

Irrigation facilities too are woefully inadequate and most of the land is cultivated under rainfed conditions. In the hill region as a whole the net area irrigated as a percent of net area sown was only 16 in 1978-79 as compared to 51 in the State. There was, moreover, considerable variation within the region. It was as high as 39 and 56 in Dehra Dun and Naini Tal respectively and only 5 in Chamoli and 8 to 16 in the other districts. Consequently the level of technology in agriculture is also very low. For

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<sup>1</sup>These and the following statistics have been taken from Uttar Pradesh Ke Krishi Ankare, 1978-79 (Directorate of Agriculture, U.P.).

instance, the per hectare consumption of chemical fertilizer (NPK) in the hill region was only 29 kgs. as against the state average of 45 kgs. Once again there are very wide inter-district variations. It was 18 kgs. in Dehra Dun and 82 kgs. in Naini Tal while in the other six districts it varied between 1.8 kgs. and 4 kgs. only.

Under these conditions agriculture is bound to be a subsistence activity for most of the people in the hill region. This is reflected in the predominance of cereal crops and the virtual absence of cash crops (except in the Terai belt and the Doon valley) in hill agriculture. Even within cereal crops, millets account for a large part of the total production ranging between 31 per cent and 54 per cent in most of the districts except in Naini Tal (6%) and Dehra Dur (24%). Agriculture in the hill areas, therefore, does not hold out much promise for bringing about any sustained improvement in the living conditions of the people.

Alternative sources of income are non-existent as non-agricultural productive activities are rare. The contribution of manufacturing to the total income and employment in the hill region is only 4.5 per cent and 3.7 per cent respectively. Once again the bulk of manufacturing activity and employment is concentrated in Dehra Dun and Naini Tal districts with the result that in the other districts its share in income is extremely low - 0.5 to 1.5 per cent (Joshi, 1983). The tertiary sector, which mainly consists of

government offices and institutions, has, no doubt, shown a rapidly increasing trend but it cannot provide a strong base to the regional economy.

The inevitable consequence of this demographic-economic situation has been the plight of a sizeable part of the male labour force out of the region mainly to the cities in the plains. This phenomenon has its own demographic, social and economic consequences. A relatively high ratio of females to males and of children and the aged in the resident population is a general feature of the demographic structure of the hill areas. This imbalance in population and the labour force has, on the one hand, led to the infliction of a very high burden and drudgery of manual work on women, and, on the other, has resulted in lower productivity of the labour force. The social consequences of this imbalance in population are also important though not measurable.

Migration in itself is neither desirable nor undesirable. Movement and mobility have been an integral part of human history. It is also a well-known fact that people move out of areas deficient in opportunities of economic, social and other forms of advancement. In a pure economic sense, migration is desirable if the productivity of the migrant is higher at destination than at origin, after accounting for the private and social cost of migration. It can be well demonstrated that the pecuniary gains

of migration to the individuals and households far exceed the direct and indirect (loss of production) costs of migration in the case of migrants from the hills. This is not on account of the very high productivity and earnings of migrants at destination, but primarily due to the very low productivity and income at the place of origin. Therefore, the inability of the native place to offer reasonably good sources of livelihood and opportunities of advancement, as the reason for migration, makes migration itself lamentable. Once outmigration from a region starts due to this reason, it is also inevitable that the process is selective; adult males, the educated and the skilled tend to migrate more often than others.

Thus the low level of development is the cause of migration. To what extent it is also a consequence of migration leading to a cumulative downward process in the regional development can be looked at in a static and dynamic context. In a static context if any loss of productivity due to migration, in the given level, organisation, and technology of economic activities, is more than compensated for by the investment of remittances and savings, migration may be considered as contributing to the development of the region, as in exchange for export of labour the region is gaining capital, which may be a more scarce factor than labour. In a dynamic sense, one needs to examine if the introduction of necessary organisational and technological changes are



introduced for a more intensive use of regional resources, can result in the employment of most of the out-migrants locally at levels of productivity and earnings comparable with those at the destinations of the migrants. The latter exercise would basically require an assessment of the development potential of the region with suitable policies for developing activity pattern, organisation and technology of production.

#### The Economy : Structure and Possibilities

In the existing pattern of economic activities, technology and production, the hill economy hardly seems capable of productively employing any more workers than are already engaged. In fact, even though open unemployment is not very significant, underemployment is found to prevail to the extent of almost 40 to 50 per cent particularly among male workers; and in urban areas, open unemployment particularly of the educated is estimated to be quite high, around eight to ten per cent (Khanka, 1983). The activity structure is characterised by almost four-fifths of the labour force in agriculture and most of the rest in the service sector, dominated primarily by public services. Secondary sector is virtually non-existent and some new units which are deliberately located there as a matter of purposive policy, offer limited direct employment due to the capital-intensive nature of most of them, and very little indirect employment due to lack of

backward and forward linkages as a result of the insulated nature of activity and lack of infrastructure.

The physical characteristics of these areas which put a limit on the development of agriculture, also pose the most serious bottleneck in the development of the secondary sector. A very limited base of traditional household industries such as woolen textiles has languished over time due both to declining local production and constrained availability from outside of the raw material and consequent gradual disappearance of skills and initiative on the part of the artisans who seek, often successfully, other avenues particularly of regular jobs in the service sector. Another potential industry, fruit processing, is constrained in its development both by the limited fruit production and non-availability of production and marketing infrastructure. Development of industries based on local herbs which are often mentioned as available in sizeable amount, does not seem to have attracted serious and systematic attention. In any case, not much systematic information is available on the nature and extent of various materials.

The two industries which most often receive mention in the context of the development of hill areas due to the presumed availability of raw material in sizeable quantities are mineral and forest-based industries. There are no definite estimates of mineral resources, but use of these resources is gravely beset by

dangerous ecological consequences. Even development of basic infrastructure items like transport and power through the construction of roads and dams is reported to have already inflicted serious damage to the soil and rock structures. Mining on any sizeable scale, even if mineral resources were located, would obviously lead to such repercussions on a much larger scale. The example of limestone quarrying in the Dehra Dun-Mussoorie area is particularly revealing as to the possible environmental consequences.

Similar is the case with the use of forest resources for industrial purposes. The arguments in the discussion on forests in the hills, have several facets. The proponents of the use of local resources for local development argue that since forest resources are in any case being exploited, their processing should be located in the hills rather than elsewhere. The argument is buttressed by the fact that over 85 per cent of the income originating in the forest sector in the hills does not accrue there, and thus produce no impact on the hill economy (Tewari, 1983). On the other hand, from the viewpoint of the environment, it would be dangerous to make any further inroads on the forests, thus rendering the use of forest resources for industrial purposes, locally or elsewhere, undesirable. At the same time, the local population is heavily dependent on forests for meeting some of its basic requirements of life.

Forestry in the hill areas, therefore, illustrates the nature of the dilemma between development, environmental protection and meeting the basic needs of the population. In the past the dilemma was resolved to some extent, though it must be added not to the entire satisfaction of all the parties, by demarcating certain areas of reserved forests and others as protected forests (which later came to be known as civil, soyam and Panchayat forests). The former were put under the exclusive control and management of the Forest Department and were worked for commercial and revenue-earning purposes. The local population were denied any rights in such forests. The rights of the local population to fuelwood, fodder and small timber for house building, repairs and agricultural implements were recognised in respect of civil, Soyam and Panchayat forests which were placed under the control of the district administration. This arrangement continues to prevail even today though it is doubtful whether it is able to meet any of the three needs adequately.

Increasing pressure of population and the rising needs of the people have imposed a heavy burden on civil, Soyam and Panchayat forests which have been heavily demanded and in many places they can be called forests only in name. Being outside the purview of the forest department there has been no attempt at their scientific management till very recently. The magnitude of the problem can be gauged from the fact that out of a total



recorded forest area of 34047 sq.kms. in the hill region of U.P., about 30 per cent (10048 sq.kms) is classified as Civil, Soyam and Panchayat forests (U.P. Draft Sixth Five Year Plan, 1980-85, Vol.1) with the gradual disappearance of forests in such a large area the people have virtually been forced to encroach on reserved forests for their vital needs of fuel, fodder and small timber further aggravating the serious environmental crisis.

The situation in the reserved forests, which have been under the scientific management of the Forest Department for over a hundred years, also leaves much to be desired. They have been over-exploited in collusion with unscrupulous contractors and the working plans have all too often been subverted for extracting maximum returns (Bahuguna, 1979). The inevitable consequence of this process has been the development of suspicion between the Forest Department and the local population with each party blaming the other for the progressive deforestation. In this climate of mutual suspicion the process of deforestation has only tended to become worse as no one is inclined to accept responsibility for his actions.

The implications of forest denudation are very serious indeed both from the long-term environmental perspective as well the short-term one of meeting the basic needs of the local population. Both these imperatives demand the protection of existing forest



cover and the reforestation of larger areas - especially in civil, Soyam and panchayat forests - as a first priority if environmental disaster is to be avoided and survival of the local population ensured. Careful thought will have to be given to alternative organisational forms and management principles for protecting and rejuvenating the forests with the active involvement of the people.

It thus seems that more than developing forest based industries, the urgent task is that of preserving forests from further damage by better management and making available alternative sources of fulfilling the requirements of the local people. It should be recognised that while the cost of environmental protection will be basically borne by the hill people, as they would be deprived of the use of local resources, the benefits of such protection would be equally shared by others as well. Therefore, even a heavy subsidization of certain items, particularly alternative sources of energy and fodder would be justified. At the same time, it is not as if the forest resources would not be utilised at all, in the meantime. The present system of management of forests, virtually denies the local people access to forest products for industrial use on any sizeable scale, and lack of infrastructure renders the local use of such resources on an economically larger scale, difficult. It seems necessary that both these lacunae are removed so that the use of forest resources, even though on a limited scale, is planned to be located in the hills.

The economic-environmental dilemma of the hills is thus not amenable to easy solutions. It is not enough to argue for local use of local resources. Nor does opposition to any effort for economic development on the plea that it damages the environment, lead us anywhere. Limited and judicious use of local non-renewable, or difficult to renew, resources combined with the development of a structure of material-light and skill-intensive activities with the minimum adverse effect on environment and ecology could alone offer a better living to the local population and prevent damage to the ecological balance. Precision instruments and electronics have often been mentioned as such activities, but very little effort has yet been made to systematically plan a network of such units in small complexes in different location in the hills. Infrastructure, particularly transport and power, will continue to be the constraints in this process. The complexes of such units have, obviously, to be located at places which are already connected by road, as it would be futile to try to locate them in very remote and entirely unconnected areas. Power availability is a constraint everywhere, but in the hills many locations provide a good scope for micro-hydel plants with use of water in local streams. It has been found that while the technical feasibility of such plants may not be in doubt, the full benefits of their establishment are not reaped due to the lack of simultaneous planning of activities using the created capacity (Joshi & Sinha, 1981). If such plants

could also reduce pressure on forests as a source of energy, even subsidization of power to some extent may be justified as pointed out earlier.

An activity which one never forgets to mention while discussing the problems and prospects of the hill region is tourism. Tourism needs to be promoted as a mechanism of social interaction and communication, and it may also come in handy for earning foreign exchange by attracting a larger number of foreign tourists. The economic benefits of tourism to a region in the country are, however, limited, particularly if the region does not have much to offer the tourist in terms of interesting and useful items of specialised local character, for purchase. There is some apprehension that tourist traffic may also sometimes pose problems of environmental deterioration and pollution. In the central Himalayan region the overall economic benefits of tourism are not likely to be high, though, for that reason alone one should not discourage this activity. Alternative costs and benefits of building tourist facilities and of investment in directly productive activities should, of course, be assessed.

#### Concluding Remarks

The pressure of increasing population has been creating severe stress on the limited and almost fixed resources of the hill areas, as topography does not allow augmentation of resources

by human efforts. Consequently the population gets increasingly impoverished, and in desperation gnaws at already depleted resources endangering its own survival in future. An imaginative and dynamic approach is thus required to tackle the dilemma of the hills. Most primary resources seem to have been stretched to the limit beyond which their further use will snap the environmental chord. Diversification of primary sector especially horticulture to the possible extent, development of fruit processing industries and a net-work of non-resource based light industries with local small scale production of energy offer some of the viable and desirable lines of economic activity. But, it must be recognised that the fragile economic base of the hills, which will remain so even after the above mentioned developments take place, will not be able to bear the burden of increasing population, and a larger population in the hills will only endanger the ecological and environmental balance, without being able to improve its economic conditions. Migration, will, therefore continue to occur, on an increasingly larger scale; and given these facts, there does not seem any point in lamenting over this phenomenon. In fact, if protection of environment is considered a high priority, such migration may have to be planned particularly of people in certain hill terrains at higher altitudes, of course, with the provision of alternative and improved avenues of employment of the displaced. The suggestion



may sound drastic but it is being made primarily to emphasise the inevitable conclusion that in the given demographic situation and trends, resource potential, and environmental constraints, an increasingly larger proportion of people born in the hills will be moving away from hills.

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